

Working Title:

Strategic Technology Developments for 2011-2020 Period to Enable Future Mars Missions

(Designed to provide inputs to Tasks #5 of the Decadal Survey :)

5. A discussion of strategic technology development needs and opportunities;

Proposed Authorship:

White paper coordinator: Samad Hayati

Recommended Team.

Dave Lavery (HQ)	Overall
Lisa May (HQ)	Overall
Dick Powell (LaRC), Aron Wolf (JPL)	Precision Landing/EDL
Michelle Munk (LaRC)	Earth Entry Vehicle (EEV)
Bob Gershman (JPL)	Back Planetary Protection
Ying Lin (JPL), Andy Spry(JPL), and Karen Buxbaum (JPL)	Forward Planetary Protection (Including Round-Trip PP and contamination control)
Stephen Gorevan (Honeybee Robotics) Paul Backes (JPL)	Sample Acquisition and Handling
Dave Stephenson (MSFC), Dave Anderson (GRC)	Mars Ascent Vehicle (MAV)
Carl Allen (JSC)	Mars Returned Sample Handling (MRSH)
Don Pearson (JSC), Ed Riedel (JPL), Tom Rivellini (JPL)	Rendezvous and Sample Capture
Issa Nesnas(JPL), and Gary Bolotin(JPL)	Rover Technology
Charles Budney (JPL)	Science Instruments

Draft Outline:

1. Introduction/Overview

2. Describe possible future Mars missions. This should be obtained from Task 6 where prioritized Mars missions are discussed.
3. Identify strategic technologies for each mission, provide maturity level and identify tall poll technologies
4. For each identified technology, provide a description which should include items a-e below (~one page, pictures and tables are OK.) Some technologies might require more than one page. The idea is to indicate technology needs with some description, but it is not required to go into too much detail. Where appropriate major required tests should also be mentioned.
 - a. What is it?
 - b. What is the state-of-the-art?
 - c. Are cost and implementation schedules understood? Best current estimate to develop technology to TRL 6 (**Please see the chart below which provides the best estimate that I have now. If you feel that these estimates are way out of acceptable range for you, provide new information; otherwise provide the same cost that I have below.**)
 - d. Are there alternative technologies that may have a significant effect on risk, cost, or schedule
 - e. Other comments, such as if technology is applicable to missions other than Mars
5. Discussion

Summarize and provide concluding remarks relative to how and when these technologies should be developed to enable target missions
6. References (Provide references for identified technologies)

Draft Schedule

- 4-15-2009: Submit outline to MEPAG Executive Committee and receive feedback (done)
- 4-29-2009: Invite identified authors to participate
- 5-26-2009: Receive first draft write-ups
- 6-08-2009: Provide feedback and ask for a second draft
- 6-17-2009: Receive second draft

6-30-2009: Assembled first draft of white paper and send for review

7-7-2009: Receive feedback

7-16-2009: Second and near final version complete

7-28-2009: MEPAG Meeting

TBD: Further refinements as needed